

GIANT TORTOISE

CARD 21

GROUP 3: REPTILES & AMPHIBIANS

ORDER
Chelonia

FAMILY
Testudinoidae

GENUS
Geochelone



This prehistoric-looking giant tortoise is found only on isolated islands. It may live longer than 100 years.

KEY FACTS



SIZES
Length: Up to 5 ft.
Weight: Up to 600 lb.



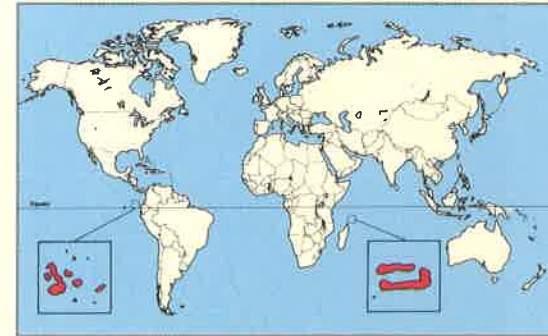
BREEDING
Sexual maturity: 20-25 years.
Mating: February to March.
No. of eggs: 10-20.
Incubation: 2 months.



LIFESTYLE
Habit: Generally solitary, but gathers to feed when food and water are scarce.
Diet: Grass and leaves; cactus, lichen, and carrion.
Lifespan: At least 100 years, possibly 200.



RELATED SPECIES
The two species of giant tortoise, *Geochelone gigantea* and *G. elephantopus*, are not directly related to each other. *G. gigantea* relatives include the leopard tortoise, *G. pardalis*, and the Indian star tortoise, *G. elegans*.



Range of the giant tortoise species.

DISTRIBUTION

Pacific species, *Geochelone elephantopus*, lives on several islands of the Galápagos. The Indian Ocean species, *G. gigantea*, is now limited to the island of Aldabra.

CONSERVATION

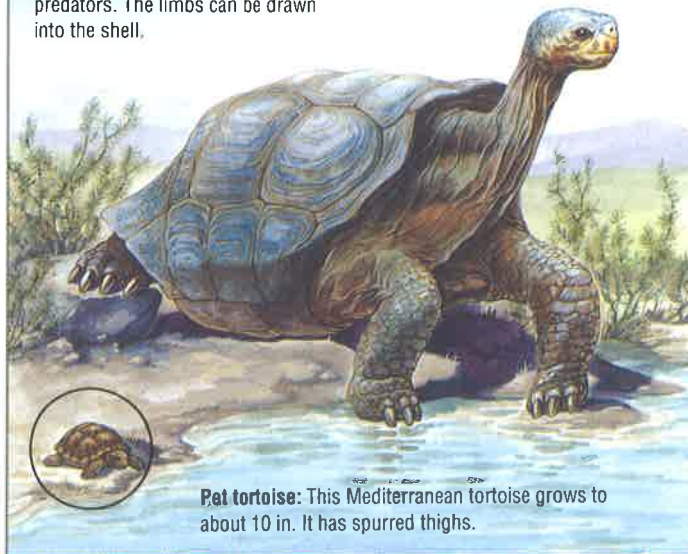
The Aldabran *G. gigantea* population flourishes and its future seems secure. The Galápagos population of *G. elephantopus* competes with introduced species and is endangered.

FEATURES OF THE GIANT TORTOISE SPECIES

Legs: Tough scales cover the legs.

Shell: The tortoise's high, convex shell provides defense against predators. The limbs can be drawn into the shell.

Feet: The tortoise's feet are not webbed for swimming.



Pat tortoise: This Mediterranean tortoise grows to about 10 in. It has spurred thighs.

THE SPECIALIZED SHELLS

Two species on the Galápagos islands have evolved differently shaped shells, each adapting to the native vegetation.



Saddle-backed shell

Testudinoidae elephantopus hoodensis: The shell is raised at the front, freeing the neck to reach higher vegetation.



Dome-backed shell

T. e. elephantopus: Found where food is plentiful at ground level.



The enormous size and weight of the giant tortoises make them look like throwbacks to another age; in fact, they were isolated on their islands for thousands of years. They adapted through time to the natural changes of their habitat.

HABITAT

Several species of tortoise exist throughout the world, but the true giants are restricted to a few isolated tropical islands in the Pacific and Indian oceans. There are two species of giant tortoise: one is on the Galápagos islands, off the coast of Ecuador; the other is now restricted to the island of Aldabra, near Madagascar.

Two species of giant tortoise on the Galápagos Islands have evolved to suit the vegetation. A raised *carapace* (upper shell) enables one species to feed on vegetation growing above ground level. This contrasts with the species

of giant tortoise that lives in areas where there is more vegetation. This tortoise does not need to stretch above its head for food, so its dome-shaped shell has not evolved with a raised *carapace*.

The giant tortoise is a vulnerable animal, despite its armor. But the giants have been able to flourish on their islands because they have no predators. In 1965 it was estimated that there were between 60,000 and 100,000 giant tortoises on Aldabra, over 10,000 per square mile.

Right: A raised *carapace*, or outer shell, allows this tortoise to reach tender leaves.



BREEDING

The male giant tortoise bobs his head and bellows loudly when he attempts to attract a mate. If the female accepts him, the male tortoise will mount her from behind. His undershell is hollowed out to accommodate her domed *carapace*, or upper shell.

The female lays 10 to 20 round eggs and buries them in the sand or soil, where they incubate. The hatching

Left: The giant tortoise was once hunted for its fine oil.

tortoises are no more than two inches long. On Aldabra many hatchlings are prey for robber crabs and frigate birds. On the Galápagos, introduced predators such as rats, cats, and dogs kill the hatchlings. After 18 months, young tortoises are still no larger than a man's fist. They grow steadily for 40 years before they reach full size.

Right: The tiny eggs incubate in the sand for two months before hatching.

DID YOU KNOW?

- The giant tortoise can live for 200 years. An adult tortoise taken to Mauritius from the Seychelles in 1776 lived for another 142 years, until 1918.
- A tortoise's shell prevents

it from expanding its chest, so it has special muscles to help it breathe.

- The shell of a giant tortoise is surprisingly fragile. Its bone structure is very light, and the shell itself is easily damaged.



Left: When food is scarce on Aldabra Island, the giant tortoise often goes into lagoon waters in search of weeds.

FOOD & FEEDING

The giant tortoise's diet consists mainly of vegetation, but it will eat almost anything. When food is plentiful during the rainy season, it can be more selective, favoring fresh young grass shoots and tender new leaves.

Few shrubs on Aldabra have foliage within the reach of the tortoise, and few seedlings survive to maturity. The Aldabran tortoises float



on the surface of the island's lagoon, reaching into the water with their long necks to feed on seaweed.

On the more arid Galápagos Islands, fresh grass and tender leaves are rare. Here, the tortoises feed on cactus, lichen, and even the acidic leaves of the guava tree. Very little food is available during the dry season. The tortoise survives for weeks on shrivelled grass, dead leaves, and the remains of dead crabs, goats, and even the *carrion* (dead flesh) of other tortoises.

Left: During the rainy season the giant tortoise prefers young grass shoots.

COMMON ADDER

GROUP 3: REPTILES & AMPHIBIANS

ORDER
Squamata

FAMILY
Viperidae

GENUS & SPECIES
Vipera berus



The common adder is a member of the viper family and is the most familiar venomous snake in Europe. Fortunately, when approached by humans, it will flee rather than bite.

KEY FACTS

- SIZES**
Length: Female, up to 30 in. Male, up to 25 in. Young, 6 in. at birth.
- BREEDING**
Sexual maturity: 2-3 years.
Breeding season: April to May.
No. of young: 8-12.
- LIFESTYLE**
Habit: Solitary except during breeding and hibernating.
Diet: Small rodents, lizards, and young birds.
- RELATED SPECIES**
There are 187 species of viper, including 142 species of pit viper, which are sometimes classed in a separate family, *Crotalidae*.



Range of the common adder.

DISTRIBUTION

Found in Great Britain, except Ireland and the islands off northern Scotland; throughout Europe to the Arctic Circle; and in the Soviet Union.

CONSERVATION

The population is declining due to loss of habitat, but the adder is not in danger of extinction. Natural enemies include the hedgehog, which is immune to the adder's venom.

FEATURES OF THE COMMON ADDER

Eyes: Vertical pupils allow the adder to see horizontal movements very well.

Female: Slightly larger than the male. Colored reddish brown with lighter markings.

Male: Vivid black diamond-shaped markings on skin that varies from yellowish to olive to gray.



Young: About 8 to 12 in a brood. May be covered in a thin membrane, from which they quickly emerge.

Ears: No external ears or ear-drums. Sound vibrations are felt through the snake's lower jaw.



The common adder belongs to the viper family and is found all over Europe. It can adapt easily and makes its home in many different habitats, from sand dunes to forests. Unlike most reptiles, the common adder is capable of living in cold climates and may be found as far north as Finland.

HABITS

The adder's activities depend on the time of the year. In spring and fall it often sunbathes during the day, but in summer it stays in the shade until early evening.

In winter the adder hibernates under a stone, in a crevice, or in the burrow of another animal. As the temperature drops, it burrows deeper to escape the cold.

The adder's winter den is

Right: The common adder has the broad arrow-shaped head typical of the viper family.

often shared by 30 or more snakes, although groups of 300 to 400 have been reported. Other reptiles may occasionally join the group, including some that would normally fall prey to the adder but are tolerated during hibernation.



FOOD & HUNTING

The adder knows its terrain well and can easily locate its prey. Its territory usually includes a body of water, where it preys on frogs, lizards, and water voles. It also eats mice and other small rodents.

The adder detects its prey by picking up vibrations from the ground or by following its scent. When the prey is within range, the adder strikes quickly, sinking its fangs into the victim and injecting it

Left: An adder lines up its prey, then coils before making its deadly strike.



with venom. The victim may run off, but the adder follows, knowing that the venom will take effect within minutes.

The adder devours its meal by swallowing it whole, start-

Above: After poisoning its prey, the adder inches its victim, head first, into its mouth.

ing with the head. After a good meal it will not need to eat for a week.



NATUREWATCH

The adder can be seen from March to October. In spring and fall it can be found sunbathing in open ground.

Many places post warnings of the adder's presence. Never attempt to touch one. Although bites are rarely fa-

tal to humans, they cause vomiting and diarrhea.

The adder usually avoids humans and slides away as soon as it detects them. It is more common to find the dead skin that the adder sheds as it grows (right).



DID YOU KNOW?

- The adder can flatten its rib cage in order to show more surface area when basking in the sun.
- The adder hibernates in the same den every year. The den is called a *hibernaculum* and may lie three feet underground.

BREEDING

During mating season males compete for the females by performing a dance. Two males face each other with the front of their bodies lifted from the ground. Swaying from side to side, they wrap themselves around each other until one forces the other to the ground. The victor mates with the waiting female.

The fertilized eggs are encased in a membrane and are

Left: Newborn adders stay close to their mothers even though they can fend for themselves.

incubated inside the female for about three months. In August or September the young rupture the membrane inside the mother's body and emerge as replicas of their parents. Some may emerge still inside the membrane.

The young are independent from birth but stay close to the mother for a few months. They catch worms and insects to eat. In the colder ranges, where summers are short, the female adder gives birth every two years.



FIRE SALAMANDER

GROUP 3: REPTILES & AMPHIBIANS

ORDER
Caudata

FAMILY
Salamandridae

GENUS
Salamandra

SPECIES
salamandra

CARD 14



S. Dalton/NHPA

The fire salamander, widespread throughout Europe and parts of Asia, is distinguished by its brilliant coloration and striking patterns, which serve as a warning to predators.

KEY FACTS



SIZES
Length: Males up to 6 in., of which at least 2 in. is tail. Females can grow to 12 in.



BREEDING
Sexual maturity: 3-4 years.
Mating: Usually in early summer, but can take place in spring and fall.
Gestation: Up to 8 months inside the females.
No. of eggs: 25-40.



LIFESTYLE
Habit: Usually solitary; sometimes hibernate together.
Diet: Tadpoles: water fleas, small worms, and aquatic insects. Adults: worms, slugs, snails, and insects.



RELATED SPECIES
The alpine salamander is entirely black and lives in the Alps. It gives birth to 1 or 2 very large, air-breathing young.



Range of the European fire salamander.

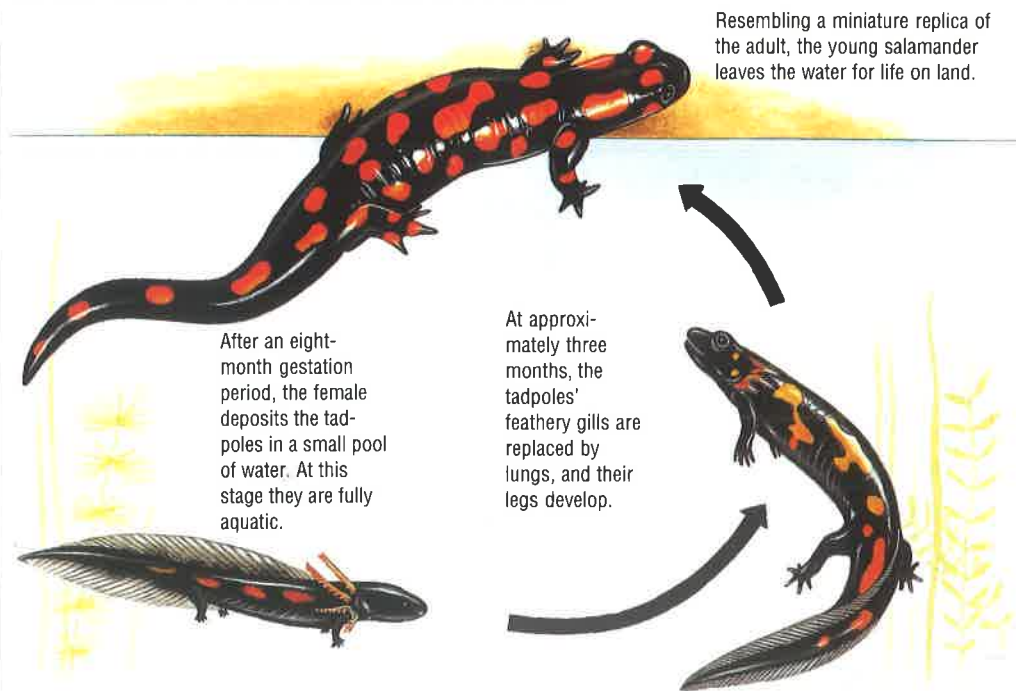
DISTRIBUTION

Europe from Spain and Portugal in the west to the western Soviet Union, Turkey, and Israel in the east. Also found in North Africa and Corsica.

CONSERVATION

Under threat from loss of habitat, the fire salamander has also been collected for laboratory use and the pet trade. It is now a protected species in much of Europe.

LIFECYCLE OF THE FIRE SALAMANDER



The typical fire salamander is black with yellow spots, but throughout its enormous range there is considerable variation. In Spain and Portugal it has orange spots, while in Italy, it has thick yellow stripes.

HABITAT

The fire salamander requires a habitat with plenty of shade trees, moisture, and ground leaf cover. It can be found on hills at altitudes as high as 3,200 feet.

While salamanders seldom venture into water, they need to be close to a shallow

source of water in which to deposit their young during the breeding season.

Because increasingly more trees in Europe are being felled for timber, the fire salamander's habitat is being threatened and, consequently, so is its survival.

FOOD & HUNTING

The fire salamander hunts mainly at night, and particularly after a rain. It moves through the leaves that litter the forest floor in search of slow-moving prey such as worms, slugs, snails, wood lice, earwigs, and centipedes.

After spotting its prey, the salamander seizes it in its jaws, shaking it from side to side before swallowing it.

In their tadpole stage, fire salamanders feed on small worms and other tiny aquatic insects.



J. Burton/Bruce Coleman Ltd.

Left: Born as tadpoles, fire salamanders take three months to undergo metamorphosis (develop into adults).

BREEDING

Most fire salamanders hibernate from early winter until spring, sleeping under rocks or in crevices. From spring to early summer, they mate on land or in shallow water.

The male follows the female and nudges her with his head, trying to climb on top of her. She rejects his attempt and he

finally crawls underneath her and releases a capsule of sperm. She picks up the sperm and pushes it into her cloaca, or genital cavity.

The eggs are fertilized and remain in the female's body until they are ready to hatch the following spring. Then, at night, she deposits 25 to 40 tadpoles into pools of water.

The tadpoles are an inch long and have brown and black markings. They have

four legs and three pairs of large, feathery gills behind their heads.

Three months later their lungs develop, they lose their gills, and they leave the water to live on land.



H.D. Dossart/Debec/Andea London

Fire salamanders show considerable variation in their skin patterns and colors. But in every case the colors warn predators of the salamander's poisonous defense.



DID YOU KNOW?

- The name fire salamander probably originated in Germany's Black Forest region. Logs were piled up next to the house for use in the winter, which provided ideal hibernating places. When the logs were thrown on the fire, the heat would wake the sleeping salamander, which would emerge from the log to escape the fire.
- Salamanders are sometimes mistaken for lizards. But unlike lizards, their heads are rounded and their skins are smooth and scaleless.

SPECIAL ADAPTATION

The fire salamander protects itself from predators by secreting a white sticky substance called *salamandrin* from small pores located on its head and back.

The substance is powerful enough to kill small mammals and can cause an animal the size of a large dog a great deal of discomfort. It will even cause vomiting and temporary blindness in a human.

Salamandrin-secreting pores



COMMON FROG

CARD 13

GROUP 3: REPTILES & AMPHIBIANS

CLASS
Amphibia

ORDER
Anura

FAMILY
Ranidae

GENUS & SPECIES
Rana temporaria



The common frog, like all amphibians, begins its life in the water. It hatches from an egg as a fishlike tadpole before growing legs and lungs as an adaptation for its adult life on land.

KEY FACTS



SIZES
Length: Males, 3 in. Females, 4 in.
Immature frogs up to 1 1/2 in.



BREEDING
Sexual maturity: 2-3 years.
Mating: Early spring.
No. of eggs: 2,000-4,000.
Metamorphosis: 12-14 weeks from tadpole to immature frog.



LIFESTYLE
Habit: Solitary; sociable during breeding season.
Diet: Small insects, including flies, beetles, crickets, slugs, snails, centipedes, and worms.
Lifespan: Up to 12 years in captivity.



RELATED SPECIES
Close relatives include the edible frog *Rana esculenta*, the North American bullfrog *R. catesbeiana*, and the leopard frog *R. pipiens*.



Range of the common frog.

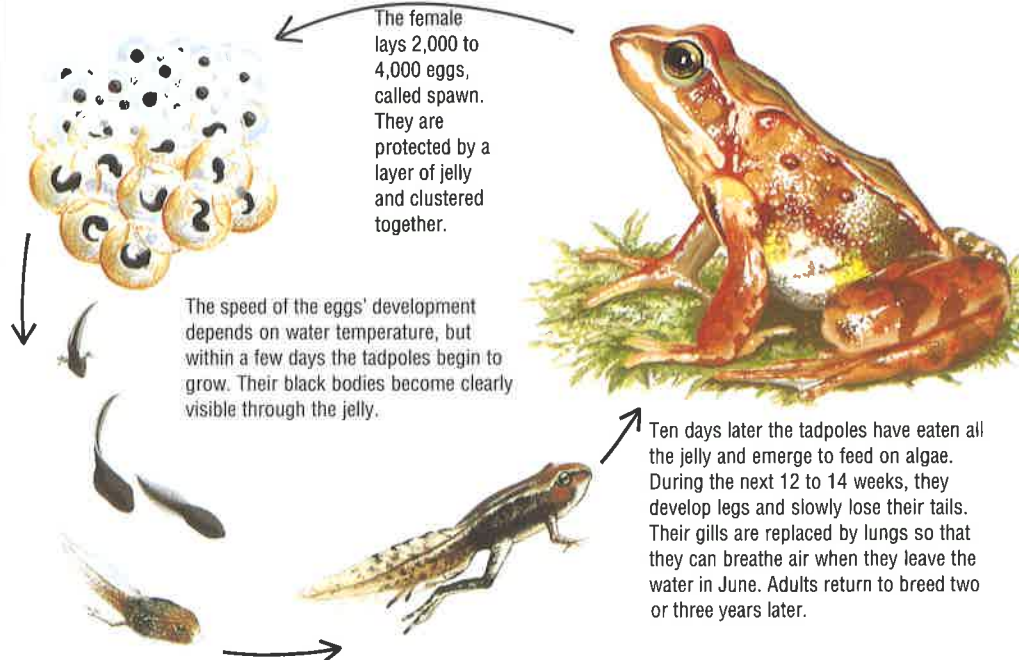
DISTRIBUTION

Range extends across northern Europe and east into the Soviet Union and Asia.

CONSERVATION

Frogs were common earlier this century, but numbers have declined drastically because of habitat loss and use in laboratories. Pollution from pesticides and fertilizers also takes its toll.

LIFECYCLE OF THE COMMON FROG





As a tadpole, the common frog has gills like a fish. As it matures, it grows lungs that work when the frog puffs its throat in and out. The adult frog can also breathe through its moist skin, which allows it to hibernate underwater.

HABITS

The common frog lives in grassy meadows and woods, on moors and marshes, along canals and rivers, and beside lakes and ponds.

During summer the common frog is most active at night. It spends the day in damp, hidden places, such as

under a log or in reeds at the edge of a pond. Sometimes it emerges during the day to bask in the sun.

The frog hibernates from November to March either on land in a secluded spot, or underwater, hidden in the soft mud.

DID YOU KNOW?

- Some frogs have a disease called neotony: they never develop into adults and remain tadpoles their entire lives.
- The frog changes its skin color to camouflage itself among vegetation.
- During breeding season, males may attempt to mate with any moving object, thinking that it is a female.
- The adult frog cannot feed underwater like the tadpole.



NATUREWATCH

Common frogs can be seen in the spring when they return to the water to lay eggs. Males make noisy croaking sounds that make the frogs easy to find.

After hatching, thousands of

tadpoles can be seen swimming along the edge of the water.

Throughout the summer and fall common frogs can be seen in most parts of their habitats on dry land.



Left: Common frogs are now more common in backyard ponds than they are in the countryside. Even a small pond can support a thriving colony.

FOOD & FEEDING

The adult frog eats snails, beetles, spiders, wood lice, centipedes, and worms. In fall the frog eats more to prepare for hibernation.

The frog sits motionless, waiting to ambush insects with its sticky, whiplike tongue. Once it catches its prey, the frog blinks its large eyes, causing them to push down into its mouth, thus forcing the food down its throat.

Right: Tadpoles eat algae until they are large enough to catch insects.



BREEDING

The frog spends most of the year away from water, returning in spring to breed.

Male frogs gather at the water's edge, where they croak continuously to attract females. Once a male finds a female, he seizes her, jumps

on her back, and clasps her firmly. The two frogs remain locked in this position until the eggs have been laid and the male has fertilized them.

Adult frogs remain in or near the water for one to two months after mating.



Above: Frogs mate until the eggs have been laid and fertilized.

PREDATORS

Hedgehogs, stoats, badgers, otters, grass snakes, and owls all prey on the common frog. The frog's thin skin and lack of defenses make it easy prey. Tadpoles are eaten by fish, ducks, newts, and various types of aquatic insect.

Man is a predator of the common frog: large numbers are caught every year for use in school and research laboratories. In France and Belgium the frog is eaten in early spring, when the large edible adults are hibernating.



Left: The male has special pads to help him grip the female.

CANE TOAD

CARD 12

GROUP 3: REPTILES & AMPHIBIANS

CLASS
Amphibia

ORDER
Salientia

FAMILY
Bufo

GENUS & SPECIES
Bufo marinus



The cane toad is the largest toad in the world. The glands on its neck produce a poison so toxic that it can kill most animals.

KEY FACTS



SIZES

Length: Male, 5 in. Female, up to 8 in.
Weight: Male, 2 lb. Female, 3 lb.



BREEDING

Mating: Varies with location, but can be year-round.
No. of eggs laid: Up to 35,000 in 1 year.
Hatching time: 3 days to 1 week.
From tadpole to toad: About 45 days.



LIFESTYLE

Habit: Nocturnal and sociable.
Diet: Insects, reptiles, other amphibians, small mammals, and birds.
Lifespan: At least 5 years.



RELATED SPECIES

There are about 300 species of toad worldwide. Frogs and toads together form the largest order of amphibians.



■ Range of the cane toad.

DISTRIBUTION

Native to Mexico, Central America, and most of South America. Has been introduced into Florida, Hawaii, Puerto Rico, Australia, and New Guinea.

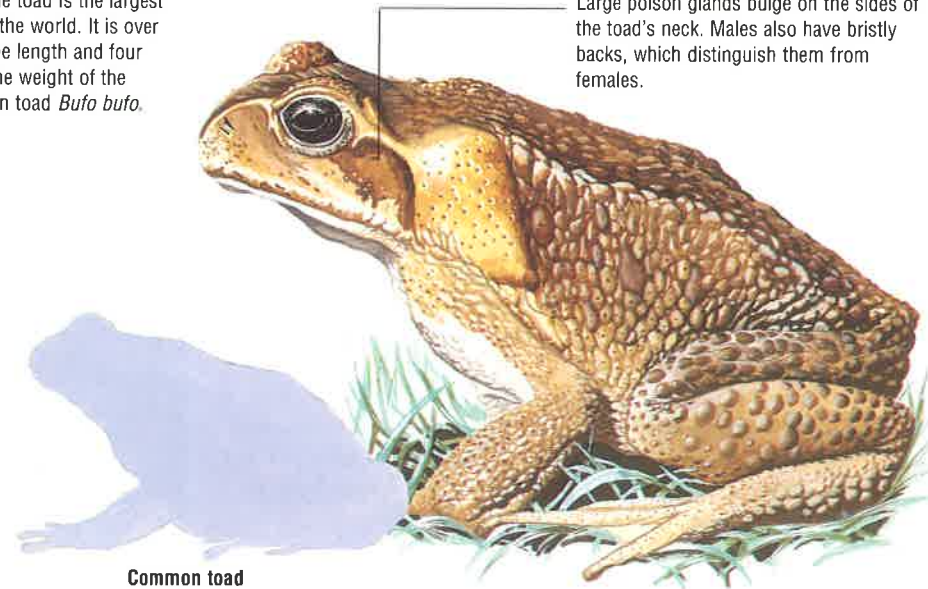
CONSERVATION

Considered a pest over much of its range. Has so few enemies and breeds so successfully that it is likely to spread to every part of Australia that has inland water.

FEATURES OF THE CANE TOAD

The cane toad is the largest toad in the world. It is over twice the length and four times the weight of the common toad *Bufo bufo*.

Large poison glands bulge on the sides of the toad's neck. Males also have bristly backs, which distinguish them from females.



Common toad

The cane toad is also known as the giant toad or the marine toad.

It was introduced into Australia from Hawaii in the 1930s with the mistaken belief that it would control the destructive sugar cane beetle.



BREEDING

The male cane toad waits near a water hole and makes a loud, bellowing call to attract a mate.

The female lays her eggs in water, where the male fertilizes them. The long string of protective jelly that contains the eggs becomes wrapped around vegetation. The female can lay 10,000 eggs at one time and more than 35,000 in a single year.

The tadpoles emerge from the eggs a week later and feed on vegetation and dead animal matter. As they mature,

they begin to grow both forelimbs and hind limbs, and their tails gradually disappear.

Despite the large size of its parents, the newly developed cane toad is tiny—no more than a quarter of an inch long at this point. But it grows very quickly and generally reaches a length of four inches by the end of its first year.

Right: As a female toad comes to the water, the waiting male jumps onto her back to mate.

HABITAT

Cane toads are often found living around houses and in yards or wooded areas. They hide during the day under loose floorboards, stones, logs, and fallen leaves. Some burrow into soft soil to escape the sun's heat. At night they emerge to search for food.

FOOD & FEEDING

The cane toad eats any creature small enough to be swallowed. Its diet consists of insects (especially moths and beetles), nocturnal reptiles, small mammals and birds, and even frogs and smaller toads.

To catch moths, the cane toad frequents houses, where lights attract large numbers of moths and other insects.

Cane toads both hunt and lie in wait for creatures to come within range. They catch prey with their sticky tongues and swallow it whole without killing it first.

DID YOU KNOW?

- The cane toad's highly developed *paratoid* (poison) glands can squirt poison at an enemy from up to three feet away.
- The cane toad's poison is so toxic that it can cause pain and vomiting in humans.
- Because of man, the cane toad has become the most widely distributed amphibian in the world.
- There are now so many cane toads in Australia that they can cover entire backyards at night.



Above: A child displays a cane toad in Australia. After failing to reduce the cane beetle population, the cane toad multiplied rapidly and became a pest itself.



Left: A cane toad eats a dead snake. Cane toads also eat frogs, other toads, and small mammals.



CANE TOADS IN AUSTRALIA

Cane toads were collected in Hawaii in the early 1930s and shipped to Queensland, Australia. The toads did not reduce the population of the cane beetle as intended but, rather, they bred rapidly and became pests themselves.

The toads now threaten the existence of Australia's native amphibians and reptiles. Because of their large numbers, the toads and their *spawn* (eggs) clog water holes and make it impossible for sheep and cattle to drink from them.

Right: Any bird, snake, or small mammal that eats a cane toad will be poisoned and die almost instantly.



MIDWIFE TOAD

GROUP 3: REPTILES & AMPHIBIANS

CLASS
Amphibia

ORDER
Anura

FAMILY
Discoglossidae

GENUS & SPECIES
Alytes obstetricians



The midwife toad gets its name from the male's behavior. After mating, he carries the eggs wrapped around his body until the young are ready to hatch.

KEY FACTS



SIZES
Length: Adults, 1-3 in.
Tadpoles, ½ in.



BREEDING
Sexual maturity: 12-18 months.
Mating: April-November.
No. of eggs: Several clusters of about 60.
Metamorphosis: From egg to tadpole to toad, about 8 months, sometimes less.



LIFESTYLE
Habit: Solitary or in small groups; common midwife toad hibernates in winter.
Diet: Small insects.
Lifespan: At least 5 years.



RELATED SPECIES
The family *Discoglossidae* has 10 species; most toads belong to the family *Bufo*idae, which has about 300 species.



Range of the midwife toad.

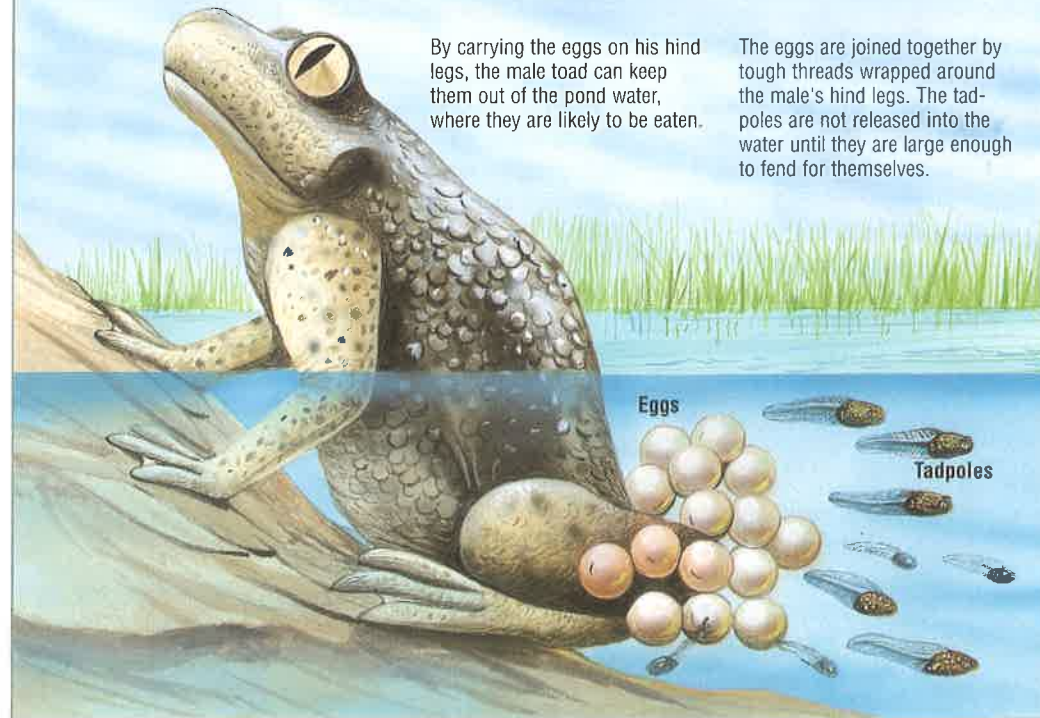
DISTRIBUTION

Found in Spain, France, Belgium, and the adjoining countries. Three other species are found in Majorca, Morocco, Portugal, and western Spain.

CONSERVATION

Numbers are declining as habitats and breeding pools are destroyed by man. In some areas, midwife toads are bred in captivity and released into suitable sites.

THE MALE TOAD AS MIDWIFE



By carrying the eggs on his hind legs, the male toad can keep them out of the pond water, where they are likely to be eaten.

The eggs are joined together by tough threads wrapped around the male's hind legs. The tadpoles are not released into the water until they are large enough to fend for themselves.



Four separate species of midwife toad are found across western Europe, northern Africa, and Majorca. Shy, nocturnal animals, they give away their presence by their ringing call.

HABITAT

During the day, the midwife toad hides under stones or logs or in underground tunnels. It often hides in dry, sandy soil, which it finds easier to dig into using its forelegs and snout.

It emerges at dusk to

forage for food, but always returns to the same hiding places before dawn.

During the winter, the common midwife toad hibernates in its hole or in a burrow that has been deserted by a small mammal.

DID YOU KNOW?

- A midwife toad's poison can kill an adder in just a few hours.
- Midwife toads can be found in the snows of the Pyrenees, living at heights of 5,000-6,500 feet.
- The earliest known amphibian lived about 350 million years ago.
- Unlike the thin tongue of many amphibians, the midwife's tongue is round and flattened. Its family name, *Discoglossidae*, means "round tongue."
- In parts of France, midwife toads live in sand dunes by the sea. They share this habitat with natterjack toads.

BREEDING

The midwife toad is unique among the frogs and toads of Europe in that the male cares for the eggs until they hatch.

Breeding occurs in May. Once a female responds to the male toad's calls, he stimulates her into laying eggs. He fertilizes the eggs immediately and carries them on his body for several weeks until they are ready to hatch into tadpoles.

Both toads may mate with others, as well. The male carries on his legs all of the batches of eggs that he has

fertilized, attached by strings.

The male keeps the eggs moist as the embryos feed and grow on the yolk. When they are ready to hatch, he places his hind legs in the water at the edge of a pool. The tadpoles burst out of the eggs and into the water.

Many tadpoles do not change into toads until the following summer. The next year, they are big enough to breed.

Right: *The toad's back is covered with poisonous "warts" that help protect the eggs.*



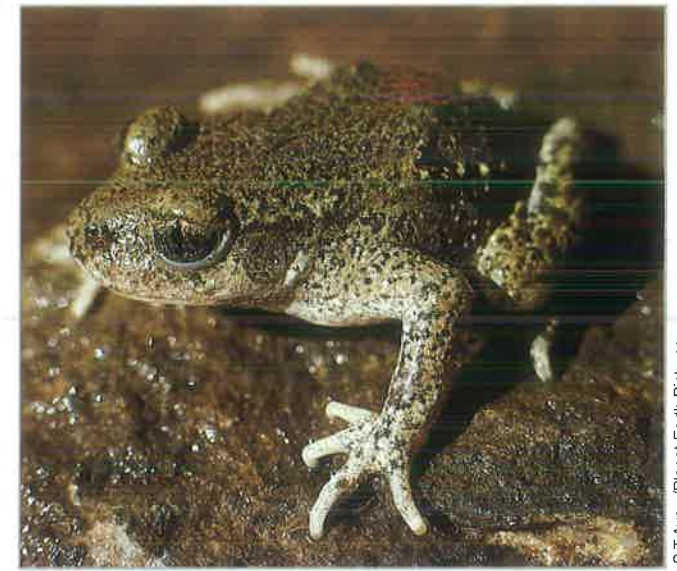
J. Burton/Bruce Coleman Ltd.



A. Flanagan/Oxford Scientific Films

Above: *A tadpole that is close to completing its development into an adult.*

Left: *Black tadpoles about to hatch can be seen inside their eggs.*



S.T. Avery/Planet Earth Pictures

FOOD & FEEDING

The midwife toad crawls around the area close to its hiding place at night to search for food. The toad uses the end of its long, sticky tongue to pick up its prey, which includes beetles, crickets, flies,

caterpillars, centipedes, and millipedes.

Tadpoles feed on vegetable matter. They chew with tiny, horny teeth. Young toads eat smaller sizes of the same prey that adults feed on.

DEFENSES

The back of the midwife toad is covered with small warts. These warts give off a strong-smelling poison when the toad is handled or attacked. The poison is so powerful that the toad has very few enemies

or predators.

The poison also helps to keep the egg strings on the male's back safe from attack.

The tadpole does not possess the poison, and therefore falls prey to fish and insects.



SPECIAL ADAPTATIONS

The Majorcan midwife toad has adapted to the harsh, dry conditions of this Spanish island. It is found only in deep canyons in the northern mountains. Its body has evolved to become more flattened, which enables the toad to squeeze

into narrow crevices in the rocks of its habitat. The only moisture available is in small, rain-filled puddles on ledges. Tadpoles are born and develop in these little pools.

Fossils of this species have also been found in Europe.